APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,563	05/31/2001	Nitin Kasturi	000012	1122

23696	7590	06/23/2005

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Patents Department
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EXAMINER
PHAN, MAN U

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/871,563	KASTURI ET AL.
	Examiner	Art Unit	
	Man Phan	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _28 March 2005_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-6 and 14-35_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) _14-21_ is/are allowed.

6) ☒ Claim(s) _1-6, 22-35_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _16 January 2002_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some *   c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Response to Amendment and Argument

1.   This communication is in response to applicant's 03/28/2005 Amendment in the

application of Kasturi et al. for a "Method and apparatus for W-CDMA modulation" filed

05/31/2001. The proposed amendments to the claims and response have been entered and made

of record.   Claims 7-13 have been canceled per Applicant's request, and claims 2, 23, 25, 27 and

31 have been amended. Claims 1-6 and 14-35 are pending in the application.

2.   Applicant's remarks and argument to the rejected claims are insufficient to distinguish

the claimed invention from the cited prior arts or overcome the rejection of said claims under 35

U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have

been fully considered, but they are not persuasive for at least the following reasons.

3.   Applicant's argument with respect to the rejected claim 1 that the cited references fails to

disclose or suggest *"removing bits not intended for transmission from the read transport blocks"*.

However, as discussed in the previous Office Action, Belaiche (US2001/0021229) is applied

herein merely for the teaching of the multiplexing/coding chain of the transport channels, in

which coded symbols on one transport channel may either be repeated or punctured (*in other*

words deleted) depending on whether the Eb/I ratio needs to be increased or reduced for this

transport channel. This known technique called rate matching of the transport channels ([0018]).

The Applicant's attention is directed to the block 116 for matching the rate of the coded transport

channel as shown in Fig. 1, in which a DTX symbol is actually a discontinuous emission

indicator and does not carry any information individually. In reception, DTX symbols are not

processed in the same way as data symbols in that a transport format detection operation is used

to determine their positions in the received blocks and to remove them (*removing bits not*

intended for transmission from the read transport block) ([0019]-[0021]). Therefore, examiner

maintains that the references cited and applied in the last office actions for the rejection of the

claims are maintained in this office action.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the invention
> was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability
> shall not be negatived by the manner in which the invention was made.

5.   This application currently names joint inventors. In considering patentability of the claims

under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims

was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 1038

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6.   Claims 1, 3-6, 22, 24, 26, 28-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Belaiche (US2001/0021229) in view of Lim et al. (US#6,182,265).

        With respect to claims 1, 3-6 and 22, 24, Belaiche (US2001/0021229) discloses a novel

system and method for matching at least two transport channels on the composite channel,

according to the essential features of the claims. Belaiche discloses in Fig. 1 a block diagram

illustrated the chain used to generate a composite channel in a downlink, in which

concatenation/code block segmentation at step 106, each of the code blocks are individually

subjected to channel coding 108 and rate matching 116 according to the puncturing and

incremental redundancy used. The blocks are then subject to physical channel segmentation

128, and interleaving 130, and physical channel mapping 132, where physical channels 1

through K are output (See also Fig. 7; page 1, para. [0015] plus, and page 4, para, [0053]

plus). Furthermore, the channel coding model for High Speed Downlink Packet Access

(HSDPA) operates accordance with the 3GPP specification protocols of section 4.2,

"Technical Specification Group Radio Access Network; Multiplexing and Channel Coding

(FDD) (Release 1999)", TS 25.212 v3.5.0 (2000-12). The detailed functionality, and the

transport channel procedure of the 3G WCDMA system is defined in 3GPP TS 25.212.

Within the International Telecommunications Union (ITU), WCDMA is the main third

generation air interface. There are two channel interleavers for 3G WCDMA, namely first

and second interleavers. The first interleaver takes a role of inter-frame (in transport channel)

interleaving and the second interleavers for intra-frame (in physical channel) interleaving

[3GPP TS 25.212 v3.9.0 (Mar. 2002) Technical Specification, 3.sup.rd Generation

Partnership Project; Technical Specification Group Radio Access Network; Multiplexing and

channel coding (FDD) (Release 1999), pp. 1-62].

However, Belaiche does not disclose expressly the use of encoder RAM in channel coding

and interleaving processes. In the same field of endeavor, Lim et al. discloses a method for

encoding a channel using a parallel convolutional encoder which is capable of inputting data

into a frame input data register and, at the same time, encoding the data using a parallel

convolutional encoder and processing an interleaving operation using two interleaver RAMs

without using a frame input data buffer RAM for decreasing the number of RAM control

logic hardware of a channel encoder and implementing a simple protocol when changing a

micro controller and a frame input data packet by overcoming the problems encountered in

the conventional art which uses a RAM storing a frame data and another RAM interleaving a

code symbol which is an output from the convolutional encoder when implementing a channel

encoder using a convolutional encoding and interleaving operation (See Fig. 1; Col. 2, lines

33 plus).

Regarding claims 28-30, they are method claims corresponding to the apparatus claims

1, 3-6 above. Therefore, claims 28-30 are analyzed and rejected as previously discussed with

respect to claims 1, 3-6.

Regarding claim 22, it's a system claim corresponding to the method and apparatus

claims above. Therefore, claim 22 is analyzed and rejected as previously discussed with

respect to claims 1, 3-6 and 28-30.

One skilled in the art would have recognized the need for effectively and efficiently

encoding transport channels according to a modulation and coding scheme in WCDMA

communication system, and would have applied Lim's novel use of encoder RAM in in

encoding and interleaving operation into Belaiche's method for matching transport channels

within a composite channel in 3GPP. Therefore, It would have been obvious to a person of

ordinary skill in the art at the time of the invention was made to apply Lim's method for

encoding a channel using a parallel convolutional encoder into Belaiche's method for

matching transport channels within a composite channel, corresponding devive and base

station with the motivation being to provide a multiplexing/coding chain for use in WCDMA

modulation.

7.   Claims 2, 22, 25, 27 and 31-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Belaiche (US2001/0021229) in view of Lim et al. (US#6,182,265) as

applied to the claims above, and further in view of Imura (US2001/0014113).

    With respectto claims 2 and 23, 25, Belaiche and Lim disclose the claimed limitations

as discussed in the paragraph 6 above. However, the claims further require the use of channel

coder and interleaver in channel coding and interleaving processes. In the same field of

endeavor, Imura (US2001/0014113) teaches a configuration of a 3GPP specification

uplink/downlink for DPCH. As shown in Fig. 6, a cycle redundant check (CRC) processes

the bit sequence and produces the CRC attached bit sequence b. A transport block (TrBk)

concatenation and code block segmentation is performed before channel coding and produces

o. Channel coding block produces encoded bits c. Radio frame equalization produces

sequence t. There is a first interleaver whose output d is processed by radio frame

segmentation and rate matching producing sequences e and f, respectively. Next, transport

channel (TrCH) multiplexing produces a sequence s, which is a coded composite transport

channel (CCTrCH). Next, physical channel segmentation produces sequence u, which is

transmitted through a second interleaver to produce sequence v. Finally, physical channel

mapping is performed to produce physical channels PhCH (Page 5, para. [0069] – [0078]).

Regarding claims 31-35, they are method claims corresponding to the apparatus claims

2, 7-13 above. Therefore, claims 31-35 are analyzed and rejected as previously discussed

with respect to claim 2.

Regarding claim 27, it's a system claim corresponding to the method and apparatus

claims above. Therefore, claim 27 is analyzed and rejected as previously discussed with

respect to claims 2, 23, 25 and 31-35.

One skilled in the art would have recognized the need for effectively and efficiently

encoding transport channels according to a modulation and coding scheme in WCDMA

communication system, and would have applied Imura's configuration of a 3GPP

specification uplink/downlink for DPCH and Lim's novel use of encoder RAM in in encoding

and interleaving operation into Belaiche's method for matching transport channels within a

composite channel in 3GPP. Therefore, It would have been obvious to a person of ordinary

skill in the art at the time of the invention was made to apply Imura's diffusion code

generator, CDMA communication apparatus using the same, and diffusion code generating

method used therefor, and Lim's method for encoding a channel using a parallel

convolutional encoder into Belaiche's method for matching transport channels within a

composite channel, corresponding devive and base station with the motivation being to

provide a multiplexing/coding chain for use in WCDMA modulation.

Allowable Subject Matter

8.   Claims 14-21 are allowable.

The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest the combination of a concatenator for reading transport blocks from the first memory, removing bits not intended for transmission from the read transport blocks, and storing the concatenated transport blocks in the second memory; a channel coder for coding the transport channels from the second memory, wherein the coding of subsets of the transport channels can be repeated; and an interleaver for receiving the coded transport channels and selecting subsets of each coded transport channel and the repeated coded transport channels to produce a coded, interleaved data stream,as specifically recited in the claims.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.
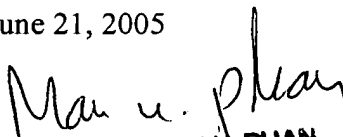
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

11.   Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

June 21, 2005

MAN U. PHAN
PRIMARY EXAMINER